

CLIPPEDIMAGE= JP406053408A
PAT-NO: JP406053408A
DOCUMENT-IDENTIFIER: JP 06053408 A
TITLE: MOM CAPACITIVE ELEMENT

PUBN-DATE: February 25, 1994

INVENTOR-INFORMATION:

NAME

FUCHIGAMI, NOBUTAKA
MATSUBARA, HIROKAZU

ASSIGNEE-INFORMATION:

NAME

HITACHI LTD
HITACHI VLSI ENG CORP

COUNTRY

N/A

N/A

APPL-NO: JP03227817

APPL-DATE: September 9, 1991

INT-CL (IPC): H01L027/04

US-CL-CURRENT: 257/532

ABSTRACT:

PURPOSE: To decrease the area or electrode required for obtaining a necessary capacitance by composing a lower electrode of a metal layer, e.g. single crystal Al, superposed by a high melting point metal while composing a dielectric of a high melting point metal oxide thereby increasing capacitance per unit area.

CONSTITUTION: Single crystal Al, is employed in the formation of a lower electrode 2 which is coated with a thin film 3 of amorphous Mo having high melting point. Thickness of the thin Mo film 3 depends on the temperature for forming an interlayer insulation film 4 and

crystallization is accelerated as the temperature rises thus forming micro-irregularities.

Ta<SB>2</SB>O<SB>5</SB> is employed in the formation of dielectric 1 in order to suppress mutual diffusion of Al and Ta. Single crystal Al film or polycrystalline Al film is employed in the formation of an upper electrode 2'.

In order to suppress mutual diffusion of the upper electrode 2' and the dielectric 1, a TiN film 8 is deposited as a barrier metal. This constitution allows employment of thin Ta<SB>2</SB>O<SB>5</SB> film as a single layer, reduces leak current, and increases capacitance per unit area.

COPYRIGHT: (C)1994,JPO&Japio